SECRET

OXC - 1544
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6 April 1961

MEMORANDUM FOR : Chief, Development Branch, DPD-DD/P

SUBJECT : Hycon High Altitude Reconnaissance System Study

1. It was with keen interest that I reviewed the above referenced Hycon reconnaissance study. I experienced much regret that Hycon was not asked to submit a proposal for the OXCART camera system. Not only is the indicated price most enticing, but I am thoroughly convinced that a camera such as the HR-244 is the best means of achieving our photographic objective in the OXCART program. This camera, with its increased focal length and increase in resolution, can achieve high quality photography in the environment imposed by the vehicle mission easier than the Perkin-Elmer or Eastman-Kodak systems.

2. I believe the high cycling rate required (0.93 sec. to 0.77 sec. at 80,000 feet) is achievable through Hycon's new and improved focal plane shutter. Shutters have always been the limiting factor in achieving high cycling rates, i.e., one second or less. Lateral coverage is achieved by rotation of a small, lightweight, balanced mirror and should create no serious problem in the cycling rate.

3. The effects of environment, temperature, heat gradients, turbulence, and shock wave, in effect, can be reduced to image movement allowable and still attain satisfactory photography. With the increased focal length (at least 2 1/2 times that of Perkin-Elmer's system) any given amount of movement will not degradate the photography as readily as the same amount of movement in the two systems now under construction.

4. Temperature gradients will be small in camera windows for the HR-244 system since the windows are small, only 6 to 8 inches in diameter.

5. Another great advantage of this system is that it would do away with the requirement for expensive dust control areas at the area. Also, all present ground handling equipment, processing equipment and PI equipment (with slight modification to the optics) could be utilized.

6. The above is not intended to indicate that we should change horses in the middle of the stream. However, it is felt that at least a prototype of this camera should be built. It is recommended we attempt to have the Air Force build the prototype insuring that size and weight is such that it will fit in the Q-bay of the A-12 for testing purposes.

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